

ABSTRACT

Systems and methods for reducing transmit echo in a transceiver are disclosed. A hybrid echo canceller includes a limited tap length FIR filter to cancel short-term echo, while an interpolated filter is used to cancel the long-tail echo. The limited tap length 5 FIR filter adapts and calculates coefficients for each adapted tap. Taps of the interpolated filter, on the other hand, are adapted but coefficients are calculated for a subset of the taps. Various interpolation schemes may be applied to the calculated coefficients to associate a coefficient with each tap of the interpolated filter. The technique presented produces an effective filter length of N taps with a reduction in computation and signal 10 processing resources. Preferred embodiments of the echo canceller may be construed as methods for reducing transmit echo. A preferred method includes the steps of: bifurcating a finite impulse response filter in response to the conversion rate of the filter tap coefficients; adaptively calculating and applying a filter tap coefficient to each tap of a short term portion of the bifurcated filter; adaptively calculating a subset of the filter tap 15 coefficients of a long tail portion of the bifurcated filter; and applying a interpolation technique to the remaining set of filter tap coefficients of the long tail portion of the bifurcated filter.